Research Report Series No. 136

DUAL SECTOR INFLATION IN PAKISTAN

Usman Afridi & Asghar Qadir

December 1982

PAKISTAN INSTITUTE OP DEVELOPMENT ECONOMICS
POST BOX NO. 1091, ISLAMABAD
(Pakistan)

Acknowledgement

Usman Afridi is a Staff Economist at the P.I.D.E. Dr. Asghar Qadir is an Assistant Professor of Mathematics at the Quaid-i-Azam University, Islamabad, he is also associated with the P.I.D.E., and the University Grants Commission.

The authors would like to thank Prof. Syed Nawab Haider Naqvi for his comments and helpful suggestions. They also gratefully acknowledge several illuminating discussions with Dr. Khwaja Sarmad, Dr. A. R. Kemal, Dr. Sarfraz Qureshi and other members of the Research Staff of the PIDE.

ABSTRACT

We have analysed the inflation structure in Pakistan. We find that, even according to official figures, there is strong evidence to suggest that a single inflation index is irrelevant for our economy, and a dual sector analysis is imperative. Dividing the economy into the two sectors, essential commodities and production commodities, we get statistically meaningful results. We consider some economic implications of our findings.

Introduction

In this paper we point out the importance of using the standard deviation in economic analysis, not merely as a confidence level on a prediction, but as a basic analytical tool. It is shown that new insights into economic problems may be obtained by giving closer attention to this statistical index in addition to the other more commonly used indices. If the standard deviation on an economic index is too high, it may be more appropriate to dispense with the one index for the entire sample and break the sample into two or more parts, each of which has a reasonable standard deviation.

It is necessary to remember that the likelihood of a given prediction coming true within certain errors is calculable for particular probability distributions. Generally for adequately large samples, the prediction will be reliable within twice the standard deviation S. However for very small samples, a better estimate of the uncertainty of prediction is provided by 2Δ instead of $2S$, Δ being $S/\sqrt{n-1}$, where n is the number of events in the sample. For a medium sized sample it would appear to be reasonable to use $S + \Delta$ instead of $2S$ (in the case of large samples) or 2Δ (in the case of small samples). Generally samples of 5-10 are regarded as small, 10-30 as medium size, and >30 as large.

In this paper, we apply these considerations to the inflation index. Clearly this index is only an average of the

inflation of all commodities. A complete description of inflation in an economy would be a tabulation of the price increase index over time (the period one is looking at). However, this tabulation in itself is of no economic use, because it cannot predict the future price of an individual commodity. By the same token, the inflation index is useful because it says the price of the commodity will probably have increased by a given amount. The less the accuracy of the prediction, the less is the utility of the index for purposes of analysis. On the basis of our earlier arguments the index is meaningless if the inflation rate is about the same as the standard deviation on it.

Our analysis shows that within the time period considered for the single inflation rate, the standard deviation is very close to the inflation rate. Thus, a single index for inflation is invalid for the purposes of prediction and inadequate as a basis for any economic analysis.

In the next section we discuss the rationale for our use of a two sector model. Presentation of the data and its analysis follows in the third & fourth sections. We conclude with some policy implication from our analysis in the fifth section.

2. *Some Basic Models*

In this section we discuss some hypothetical two sector models to emphasize the new features that appear in a two sector analysis, which are completely lost in the single

sector analysis. Of course, a multi-sector analysis would provide further economic insights.

Imagine an economy with two sectors with equal weights. The initial price level for the two sectors is different, but within each sector, it is the same. It may seem arbitrary as to where the price level is fixed, and hence the distinction of the price level may seem irrelevant. The purpose of introducing this difference is for later reference where inflation rates changing over time will make it impossible to keep the price levels of the two sectors the same at every starting time.

(i) Consider, first, the case where the two sectors A and B experience equal inflation rates over time (see Figure 1). The initial price levels for the two sectors are p_1 and p_2 respectively. Both sectors have a constant and equal inflation rate along Aa and Bb. At any later time t, the price levels of the two sectors are $p_1(t)$ and $p_2(2)$. Here no error can occur by using a single index to explain inflation, for a single sector (with twice the weight) having an initial price level $p = (p_1 + p_2)/2$ and inflating along Cc so that the price level at t, p(t), is the average $p_1(t)$ and $p_2(t)$

(ii) Consider, next, a varying inflation rate over time (see Figure 2). The inflation rate between the two parallel curves is the same. When they converge, in the case that they are both convex as in (Figure 2a), the difference between the average curve and the two curves reduces. Thus,

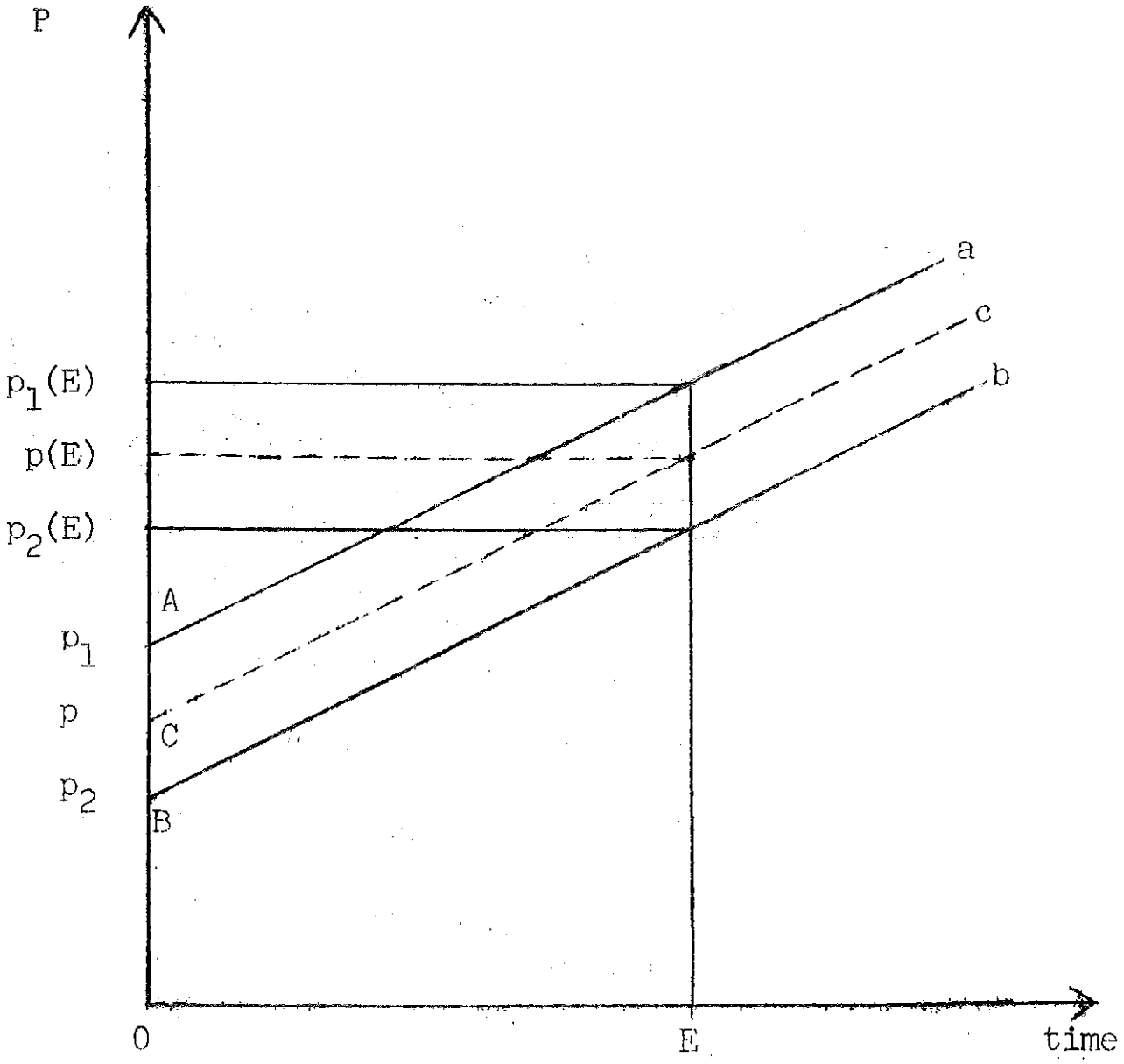

Figure 1

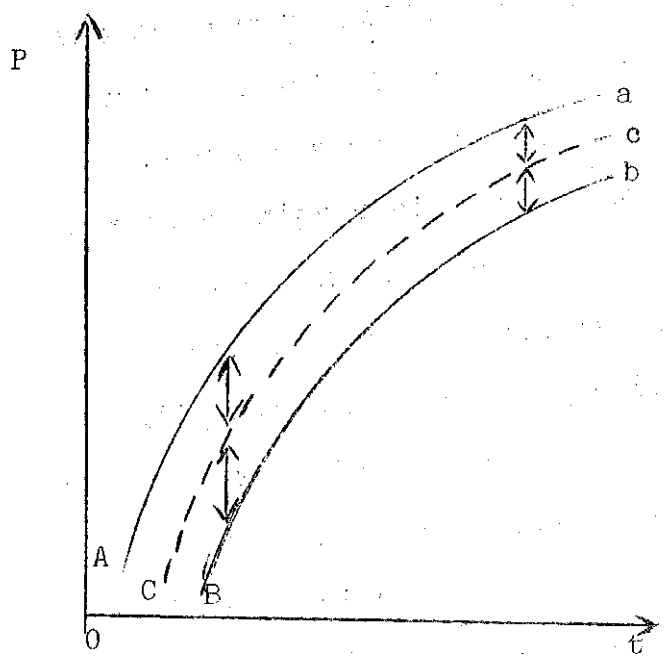

Figure 2.a

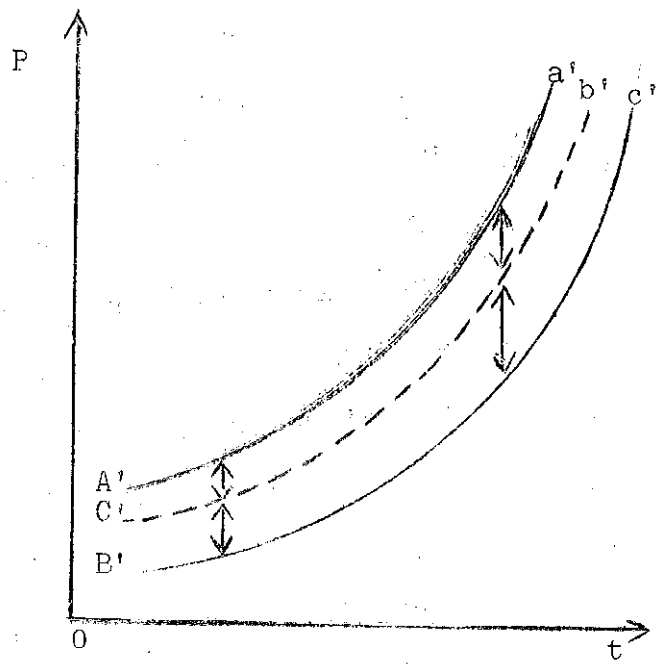

Figure 2.b

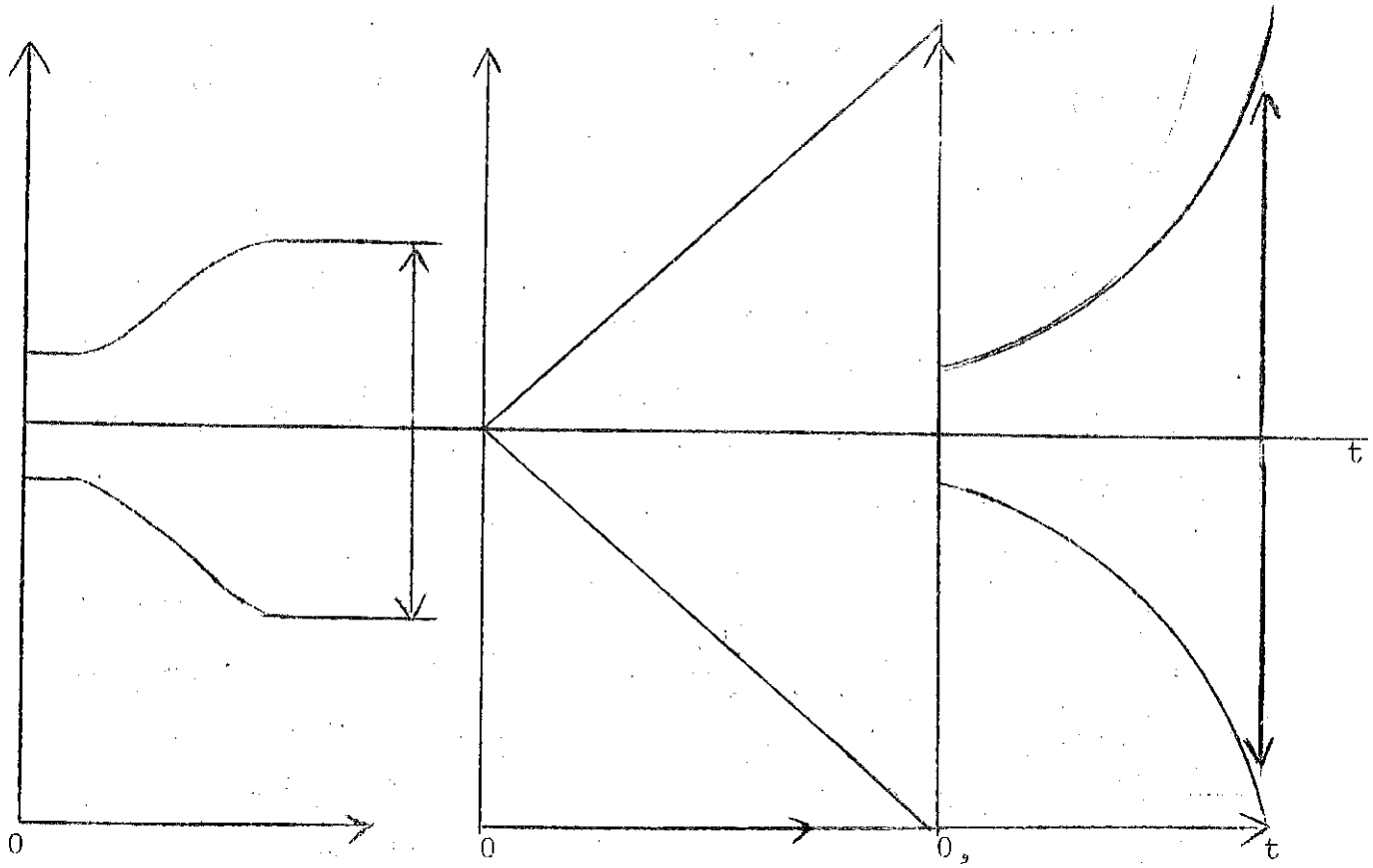

Figure 3.a Figure 3.b Figure 3.c

there is an increasingly better description of the economy in terms of the single sector. However, in the case that they are both concave as in (Figure 2b), they diverge. Here the aggregate description becomes increasingly poor as the difference between the two sectors and the average steadily increases. Thus the standard deviation increases and the reliability of the average description steadily deteriorates till such time as it becomes pointless. It is very clear that here it would be more appropriate to disaggregate the economy into two sectors. Notice that if the curve is steeper than parabolic, the change in the standard deviation will increase even in terms of constant prices.

(iii) Consider now the case (however unlikely it may seem) of equal and opposite variations over time, (see Figure 3). Here the single sector inflation rate is zero. However, one sector is inflating while the other is deflating. Thus, it is absurd to have a single index as it shows nothing. At least a two sector framework is essential here. In Figure 3a with both curves being convex to the time axis, the difference between the average index, parallel to the time axis, and the two curves increases. Since the difference is bounded it stabilizes. In Figure 3b with constant rates the difference is not bounded. Clearly the single sector description is entirely irrelevant here as the prediction of a zero (or nearly zero) inflation rate becomes steadily worse with the passage of time, and only the two sector analysis can be applicable. Notice that when the second sector deflates to a

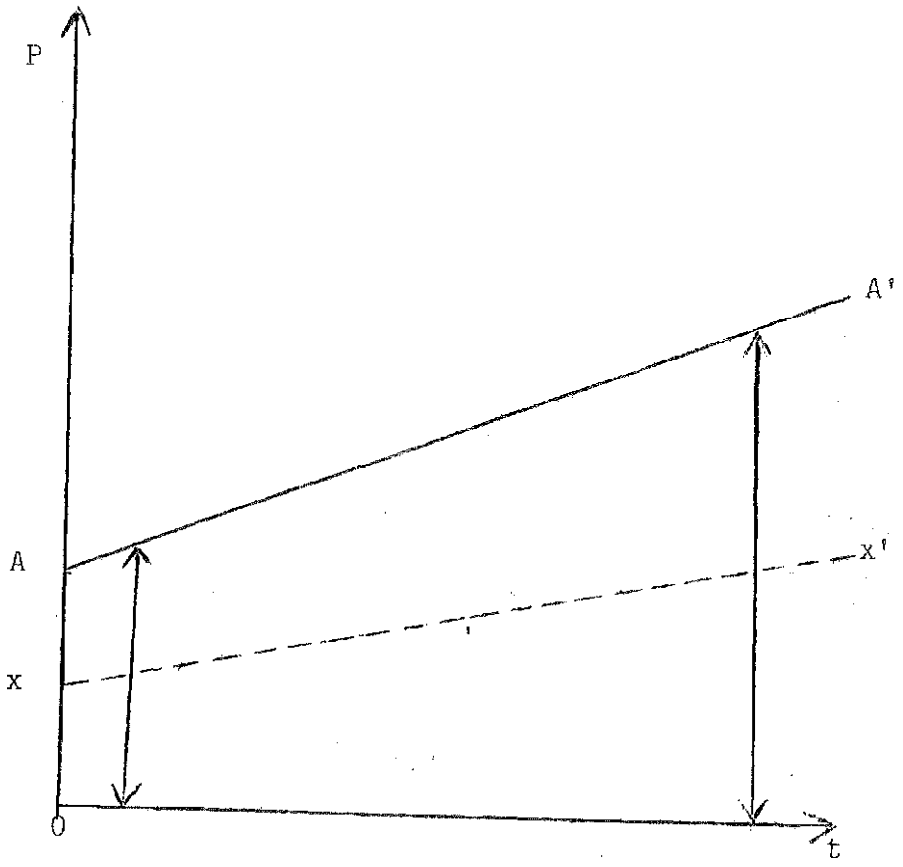

Figure 4

zero price it becomes a sector producing free goods. Under these conditions there will occur a basic structural change in the economy, which could not be anticipated by a zero inflation rate. In Figure 3c, where the two curves are concave to the line representing the average (zero) inflation, the magnitude of the difference increases even faster than in the case (iii b) and becomes worse even sooner. A single index in all these three cases is not only meaningless, but even misleading for predictive purposes.

(iv) Now consider the case where one sector is experiencing a zero inflation rate while the other has positive inflation, (see Figure 4). The average inflation rate is not as bad a description in this case as in the case (iii b). In the early stages it may even give valid predictions. However, there must come a stage where the uncertainty of prediction is greater than the average rate. At this stage a two sector analysis becomes essential.

(v) In actual economies, if a two sector analysis is reasonable we would expect different, positive, time-varying inflation rates. (see Figure 5). As the diagram suggests the movement towards instability increases the distance between the average curve XX' and the two curves AA' and BB'. In this paper our analysis will be based on this model and we would suggest that the use of a single index to explain inflation in Pakistan is not valid and that it would be more appropriate to present the economy as that of two sectors.

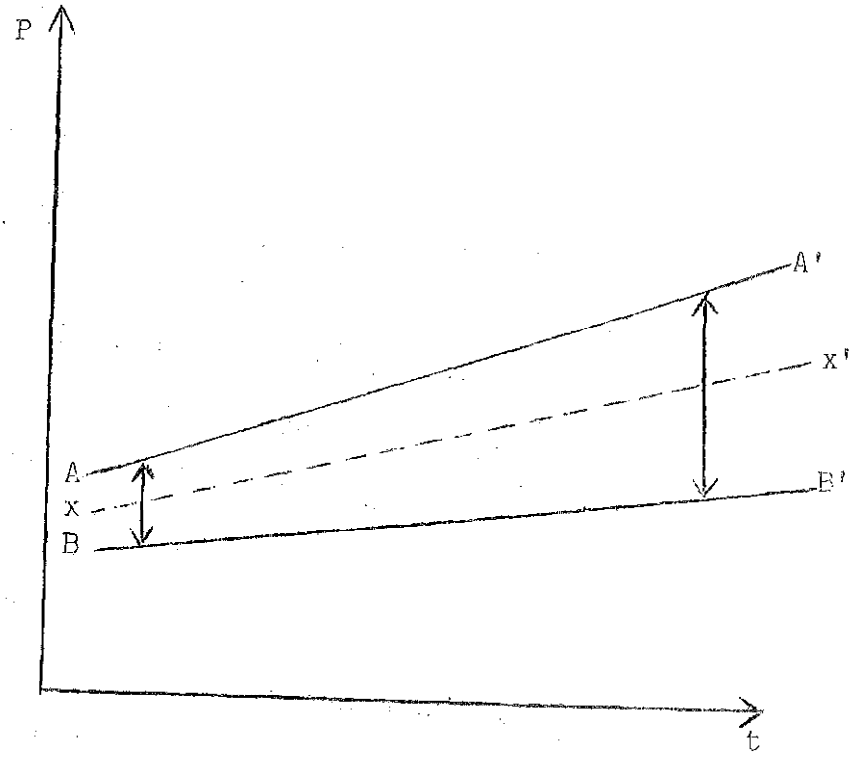

Figure 5

3. *Presentation of Data*

We have disaggregated the economy into two sectors, which as we shall see is a meaningful disaggregation for predictive purposes. In the first sector we have listed 16 commodities which can be described as "basic foods", which are all produced in the agricultural sector. (Henceforth we shall call it the basic food consumption sector, or "consumption sector" for short.) In the second sector we have listed 28 commodities which consist of finished industrial products, industrial raw material and cash crops from the agricultural sector. (Henceforth we shall call it the production sector.)

We have used two sources of data for the purpose of our analysis. The CSO price indices of wholesale prices (base year 1969-70 [6] to determine the inflation rates of individual commodities listed in the two sectors. To determine the weights of commodities as against the total weight of their respective sectors we used the 'input-output' tables compiled at the PIDE [2].

We have used the CSO statistics even though we have reservations about their authenticity. We believe that the CSO has used depressed price changes in almost all commodities listed in our consumption sector. Nevertheless, since it turns out that our arguments are even stronger on adjusted data than on the CSO data in establishing our hypothesis, we prove our point using the CSO data.

The reason why we use the 'Input-output' tables of the PIDE as against the CMI [5] and those available in the National Accounts, is as follows. The CMI data suffers from non-response. This makes the CMI data very unreliable for prediction. The weights computed on this basis are biased. The CSO aggregation of price indices which are based on the CMI data is therefore inaccurate. We have also not used the National Accounts Data, because they do not provide the disaggregation required to compute the weights of the individual commodities. This disaggregation is provided by the 'input-output' tables of the PIDE, which do not suffer as much from the non-response problem.

We have not included cement and other commodities relating to construction in our analysis. This was done because, during the period under consideration, these commodities were being affected temporarily by extraordinary factors which leave them unsuitable for analysis.[1] We have also not included rice in our consumption sector because of the special controls governing its production and marketing. As it is primarily an export good, we have included it as a cash crop in our production sector, the weight assigned is in relation to the quantity exported.

---

[1] The Tarbela Dam repairs and the construction boom due to increasing foreign remittances resulted in creating shortages of construction commodities which raised the prices upwards. During the first half of the time period considered by us , cement was being sold at 200% of international prices. Both these factors stabilized by the later half of our considered time period and there was a glut in the cement market.

We selected the period 1976-77 to October 1981 for our analysis. We did this to abstain from the effects of the dismemberment of Pakistan in 1971, the effects of the devaluation of the rupee in the first half of the seventies and the four-fold increase in international petroleum prices of 1973-74 (even though those figures would have increased the uncertainties in the single sector analysis, much more than in the two sector analysis). The period selected, though short, has been relatively stable in so much as there has been a consistent economic policy, no natural disasters and an apparent political stability.

4. *Analysis of Data*

Consider first the single sector analysis. In table 1 are listed 44 commodities which are a fair representation of the economy, representing Rs. 58,911 million worth in the year 1975-76. We took the value of production from the input-output tables mentioned earlier and computed the respective weights from them. We obtained the inflation rates of the individual commodities by using the CSO prices for those commodities. We applied the weights of the commodities to their inflation rates and obtained the weighted inflation rate for the whole sector. We found it to be 11.28% per annum. Using the previous data we computed the standard deviation on this single index and found it to be 9.8% and Δ to be 1.5%. Clearly for this large sample the prediction should be more than 2S. However, it is infact

even less than $S + \Delta$. On the basis of our previous arguments we would suggest that this single index is statistically meaningless for the purposes of prediction.

Consider now the two sector analysis. Table 11.a and 11.b respectively represent the consumption and production sectors described earlier. The consumption sector described in Table 11.a consisting of 16 commodities is a medium sample. It would be reasonable to estimate the uncertaintly of the prediction by $S + \Delta$ rather than 2Δ (which is used for a small sample). The weighted inflation rate for this sector was computed to be 16.9% with $S = 11.5$ and $\Delta = 2.9\%$. Thus $S + \Delta = 14.4\%$. The prediction being more than the uncertaintly, is fairly reliable.

The production sector described in table 11.b consists of 28 commodities. The weighted inflation rate for this sector was computed to be 6.2% with $S = 3.4$ and $\Delta = 0.6\%$. Thus $S + \Delta = 4.0<6.2\%$. The prediction, being close to 2S and well above $S + \Delta$, is quite reliable. Notice that in a normal random sample, disaggregation will make the component have *higher* uncertainties than the original aggregate sampl Even if there had been no difference made by disaggregating, the disaggregation could not have been random. Since the uncertainties are sharply reduced, and infact a much smaller sample (16 elements) has nearly the same uncertainty as the total sample of 44 elements, the disaggregation must be significant.

We carried out two tests for the stability of our analysis. The first test was to split the time period considered into two. For the one sector in the first half the inflation rate was 10.7% and the standard deviation on it was 10.2%. In the second half the inflation rate was 11.4% and the standard deviation on it was 9.6%. In both cases, as the prediction was well below twice the standard deviation, the single sector analysis was found not suitable for predictive purposes. For the two sector analysis in the consumption sector, in the first half, the inflation rate was 15.7%>S + Δ = 9.6% in the second half the inflation rate was 18%>S + Δ = 13.1%. For the production sector the inflation rate in the first half was 4.6%>S + Δ = 2.6%, in the second half the inflation rate was 7.3%>S + Δ = 3.9%. In all cases we found the two sector analysis to be as significant for predictive purposes as in the previous analysis. As such the analysis was found to be stable. The apparent increase in the inter-sector difference over time may not be significant, but it suggests that the curves for the two sectors are concave to the time axis, with the consumption sector increasing more steeply than the production sector.

In the second test we substituted sugar for fish in the consumption sector and vice-versa for the production sector. In the food sector we found the inflation rate falling by .1% but no change in the standard deviation on it. In the production sector the inflation rate rose by .2% but again no

change in the standard deviation on it. This test again established the stability of our analysis in that it is not affected by minor substitutions of commodities.

To summarize, we found that the single index was inadequate for predictive purposes but the two sector indices were fairly reliable and meaningful.

We have taken wheat prices as they are without considering the 35% subsidy on it. However, the recent IMF and World Bank recommendations for the withdrawl of subsidies, would make it important to consider the cost as it would be without Government intervention. It is significant to note that if we perform the above calculations with the subsidy *removed* the single inflation rate will increase by 0.7% to 12.0% and S will increase by 0.07% to 9.8%. In the consumption sector, however, the inflation rate will increase by 1.6% to be 18.5% and S will *decrease* by 0.7% to yield 10.7%. Thus we would find a much better fit to the two sector model than the single sector model. Presumably this was the economic reason for this subsidy in the first place.[2] It would be very harmful, then, to remove this subsidy as suggested by the IMF, as it would increase the divergence between the two sectors. It may be argued that the other suggestions in the IMF package could alter our conclusion. However, a glance at the suggestions shows that they all tend in the

---

[2] It is interesting to note that if we were to replace the 35% subsidy mentioned above by 100% the standard deviation in the two sector model would become very much less, Is this, perhaps, an indication that the subsidy is considerably more than 35% (say even up to 65%)?

same direction. It may be hoped that in the long run the situation may tend to improve by following the IMF package. We feel that this is a forlorn hope unless the package has been prepared with an eye on this problem — which we have no reason to believe is the case.

2 *Some Policy Implications*

The PIDE has constructed an Econometric Model for Pakistan's Economy (1959-60 to 1978-79) with 103 variables. [4], the model has derived systematic and empirical relationships for the economy. The model suggested that inflation in Pakistan has mostly been a domestic phenomenon, rather than an imported one, as has been popularly believed. Our analysis is in keeping with the findings of the Econometric Model, because, if inflation was due to external factors, the production sector (being associated with exports and imports) would be expected to have been inflating at a higher rate than the consumption sector. Our findings, being to the ~~country~~ contrary, would suggest that if external factors affect the economy at all the effect is, at most, less inflationary then the domestic factors. Admitedly there could be other explanations for our findings.

Our analysis support the results of the Econometric Model in as much as it identifies the factors responsible for the higher rate of inflation in our economy. We find the basic consumption sector, inflating at about 17% nearly 3 times

the rate of the production sector which is inflating at about 6%. Thus it is the basic consumption sector which is responsible for the double digit inflation rate within the economy. Notice that this identification has only been possible through a two sector analysis, and has been ignored up to now because of a single index analysis which was inadequate for statistical prediction, or a multisector index analysis which was without any predictive significance.

A significantly rising inflation would indicate, in very basic economic terms, a shortage in supply and an excess in demand. On the other hand, very moderate inflation would suggest that the forces governing demand and supply of goods can be characterized as normal. From our analysis we infer that the production sector, with a relatively low inflation rate, has experienced only a moderate excess demand. The consumption sector on the other hand, with a very high inflation rate, suffers for an acute excess demand. This fact is in contradiction to the popular belief that Pakistan has achieved self sufficiency in the production of basic food commodities.

The phenomenon of 'stagflation' (stagnation of the economy coupled with high inflation) present in Pakistan's economy was identified by Naqvi [3]. On the basis of our analysis we would suggest that it is the production sector which is stagnating and the consumption sector which is responsible for the high rate of inflation in the economy.

Again this insight has been possible only through a two sector analysis. Other things being equal, low income groups spend a relatively higher proportion of their incomes on basic food than the higher income groups. Thus if the basic food sector Is Inflating at a rate higher than the production sector, the lower income groups would be relatively worse off. The greater the disparity the worse off would the lower income groups be., It is interesting to note that Irfan [1] has worked out the Gini indiccs for both the rural and urban populations. He finds that inequalities have worsend in the 70's as against earlier decades. Our analysis would concur with his findings.

In figure 6 we portray a hypothetical situation depicting the inflation experienced by the consumer as a production commodity, and as a consumer himself. Assuming that his income (at a) is greaterthan the cost of his essential consumption commodities (at b), he will be above his subsistence level. His income here is Inflating along the curve AA' and for his consumption, he faces an inflation rate along the curve BB'. Now if BB' is inflating at a rate higher than AA ', at some point 0, AA' will fall below BB'. The consumer should thus fall below his subsistence level at this point. The recommendations of the IMP and the World Bank for removing the subsidy on wheat would bring the point 0 much earlier in time. It can not then be doubted that Pakistan must give serious attention to the existence of duality in

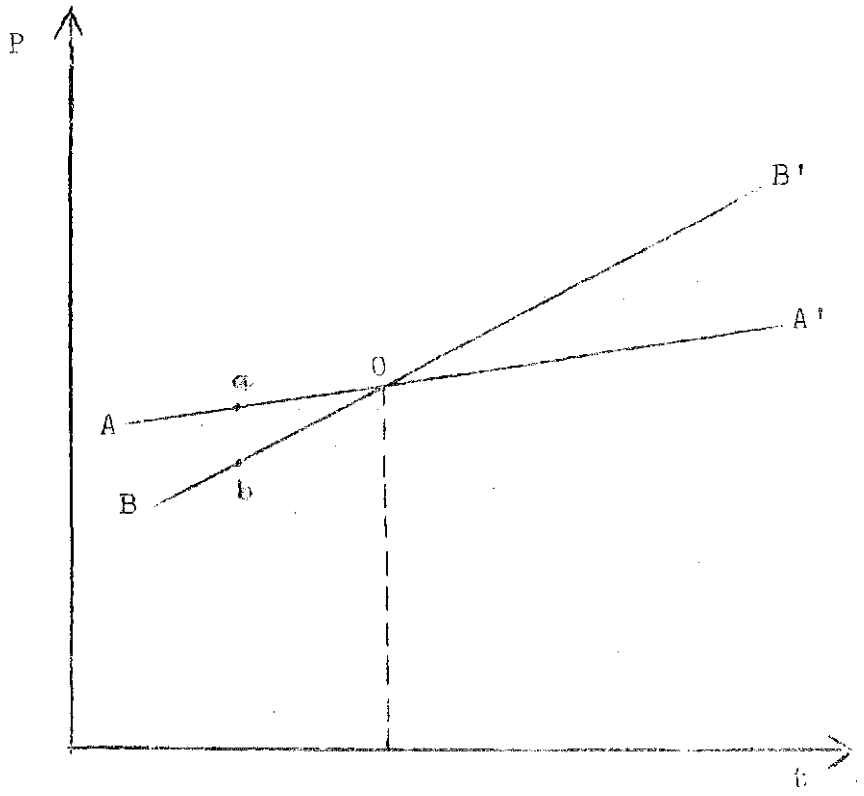

Figure 6

its economy. The consequence of this duality is to increase effective income inequalities. Policies which try to make the two sectors coverage are seen to be absolutely vital.

REFERENCES

1. Irfan, M. "Poverty in Rural Pakistan". (under preparation)

2. Kemal, A. R. *et al.* 'Input-output Table of Pakistan's Economy: 1975-76'. Islamabad: Pakistan Institute of Development Economics. July 1982.

3. Naqvi, Syed Nawab Haider. "A Note on Inflation in Pakistan: Causes and Cures". (unpublished)

4. Naqvi, Syed Nawab Haider, *et al.* *The PIDE Econometric Model of Pakistan's Economy (1959-60 to 1978-79).* Islamabad: Pakistan Institute of Development Economics. 1982.

5. Pakistan. Central Statistical Office. *Census of Manufacturing Industries.* Karachi. (various issues)

6. Pakistan. Central Statistical Office. *Monthly Statistical Bulletin.* Karachi. (various issues)

(Ra Na)

TABLE I

	(%)	Value	W	P W	d	d	d^2w_3
Wheat	10.65	11818	.2006	2.1364	.6267	.3928	.0788
Maize	12.52	1057	.0179	.2241	1.2433	1.5458	.0277
Barley	14.15	300	.0066	.0934	2.8733	8.2559	.0545
Jowar	10.00	294	.0050	.0500	1.2767	1.6300	.0082
Bajra	11.50	748	.0127	.1461	.2233	.0499	.0006
Gram whool	48.55	1736	.0295	1.4322	37.2733	1389.2988	40.9843
Gram split	56.96	1110	.0188	.9580	39.6833	1574.7642	29.6056
Masoor	26.80	410	.0070	.1876	15.5233	240.9728	1.6868
Mash	23.86	257	.0044	.1050	12.5833	158.3394	.6967
Moong	17.61	406	.0069	.1215	6.3333	40.1107	.2768
Vegetables	16.25	3658	.0621	1.0091	4.9733	24.7337	1.5360
Fruit	15.32	3140	.0538	.8166	4.0433	16.3483	.8795
Poultry	14.25	863	.0146	.2081	2.9733	8.8405	.1291
Meat (Beef)	12.85	1059	.0180	.2313	1.5733	2.4753	.0446
Condiments	10.80	121	.0021	.2277	.4767	.2272	.0005
Fish	18.42	686	.0116	.2137	7.1433	51.0267	.5919
				11.2767			

Contd/....

(CONTINUED Table 1)

	(%)	Value	W	P W	d	d^2	d^2w_3
Iron & Steel	4.20	2797	.0475	.1995	7.0767	50.0797	2.3788
Machinery	8.60	1967	.0334	.2872	2.6767	7.1647	.2393
Tpt	9.20	1167	.0198	.1822	2.0767	4.3127	.0854
Chemicals	13.77	1014	.0172	.2368	2.4933	6.2165	.1069
Drugs & Medicines	7.90	911	.0155	.1225	3.3767	11.4021	.1767
Cotton yarn	4.80	1371	.0233	.1118	6.4767	41.9476	.9774
Cotton Manuf.	5.10	1642	.0279	.1423	6.1767	36.1516	1.0086
Silk-Rayon	9.30	985	.0167	.1553	1.9767	3.9073	.0653
Jute Mar	6.20	462	.0078	.0484	5.0767	25.7729	.2010
Wool Textiles	3.10	214	.0036	.0112	8.1767	66.8584	.2407
Matches	13.80	57	.0010	.0138	2.5233	6.3670	.0064
Edible Oil	2.10	4708	.0799	.1678	9.1767	84.2118	6.7285
Radio - T.V.	2.40	192	.0033	.0079	8.8767	78.7958	.2600
Elect-goods	10.26	187	.0032	.0328	1.0167	1.0337	.0033
Fertilizer	6.70	817	.0139	.0931	4.5767	20.0462	.2912
Dying Material	6.00	180	.0031	.0186	5.2767	27.8436	.0863
Rubber product	8.00	212	.0036	.2288	3.2767	10.7368	.0387
Sugar	12.30	1020	.0173	.2128	1.0233	1.0471	.0181
Cigarettes	13.50	1050	.0178	.2403	2.2233	4.9431	.0880
Leather	11.40	210	.0036	.0410	.1233	.0152	.0001
Cotton	5.40	5439	.0923	.4984	5.8767	34.5356	3.1876
Sugarcane	10.20	990	.0168	.1714	1.0767	1.1593	.0195
Rice	6.40	2479	.0421	.2694	4.8767	23.7822	1.0012
Wool	-.30	70	.0012	-.0036	-14.2767	203.8242	.2446
Hair	-7.30	175	.0030	-.0219	-18.5767	345.0938	1.0353
Hide	-.50	368	.0062	-.0031	10.7767	116.1371	.7201
Skin	4.00	174	.0030	.002	7.2767	52.9504	.1589
Tobacco	8.50	305	.0052	.0442	2.7767	7.7101	.0401

Table II.a

CONSUMPTION SECTOR

	p_i	Value	W_2	$p.w_2$	d	d^2	d^2w_2
Wheat	10.65	11818	.4258	4.5348	6.2415	38.9563	16.5876
Maize	12.52	1057	.0381	.4770	4.3715	19.1100	.7281
Barley	14.15	390	.0141	.1995	2.7415	7.5158	.1060
Jowar	10.00	294	.0106	.1060	6.8915	47.49	.5034
Bajra	11.50	748	.0270	.3105	5.3915	29.0683	.7848
Gram whell	48.55	1736	.0626	3.0392	31.6585	1002.2606	62.7415
Gram split	50.96	1110	.0400	2.0384	34.0685	1160.6626	46.4265
Masoor	26.80	410	.0148	.3966	9.9085	98.1884	1.4530
Mash	23.80	257	.0093	.2213	6.9085	47.7274	.4439
Moong	17.61	406	.0146	.2571	.7185	.1552	.0023
Vegetables	16.25	3658	.1318	2.1418	.6415	.4815	.0071
Fruit	15.32	8140	.2131	1.7827	1.5715	2.4696	.2793
Poultry	14.25	863	.0311	.4432	2.6415	6.9775	.2170
Meat (Beef)	12.35	1059	.0382	.4909	4.0415	15.3334	.6229
Condiments	10.80	121	.0044	.0475	6.0915	37.1064	.1632
Fish	18.42	686	.0247	.4550	1.5285	2.3363	.0577
				16.8915			131.1250

TABLE II .b

PRODUCTION SECTOR

	(%)	Value	w_3	p_3w_3	d	d2	$d2w_2$
Iron & steel	4.20	2796	.08972	.3768	-2.0416	-4.1681	.3740
Machinery	8.60	1967	.06312	.5428	2.3584	5.5621	.3511
Tpt	9.20	1167	.0374	.3441	2.9584	8.7521	.3273
Chemicals	13.77	1014	.0325	.4475	7.5284	56.6768	1.8420
Drugs & Medicines	7.90	911	.0292	.2306	1.6584	2.7503	0.0803
Cotton yarn	4.80	1371	.0439	.2107	-1.4416	+2.0782	0.0912
Cotton manf.	5.10	1642	.0526	.2682	-1.1416	+1.3032	.0685
Silk-Rayon	9.30	985	.0316	.2939	3.0584	9.3538	.2956
Jute Man	6.20	462	.0148	.0917	-0.0416	+0.0073	.0001
Wool textiles	3.10	214	.0006	.0186	-3.1416	+9.8696	.0592
Matches	13.80	57	.001	.0138	7.5584	57.1294	.0571
Edible oil	2.10	4708	.1510	.3171	-4.1416	+17.1528	2.5901
Radio-T.V.	2.40	192	.006	.0144	-3.8416	+14.7579	.0885
Elect. goods	10.26	187	.006	.0615	4.0184	16.1475	.0969
Fertilizer	6.70	817	.026	.1742	0.4584	.2101	.0055
Dying material	6.00	180	.006	.036	-0.2416	+0.0584	.0004
Rubber products	8.00	212	.006	.048	1.7584	3.0920	.0186
Sugar	12.30	1020	.0327	.40221	6.0584	36.7042	1.2002
Cigarettee	13.50	1050	.0336	.4536	7.2584	52.6844	1.7702
Leather	11.40	210	.006	.0684	5.1584	26.6091	.1596
Cotton	5.40	5439	.1745	.9423	-0.8416	+0.7083	.1236
Sugarcane	10.20	990	.0317	.3233	3.9584	15.6689	.4967
Rice	6.40	2479	.0795	.5088	0.1584	0.0251	.0020
Wool	-3.00	70	.002	-.0060	9.2416	85.407	.1708
Hair	-7.30	175	.005	-.0365	13.5416	183.3749	.9169
Hide	-.50	368	.0118	-.0059	6.2421	38.9638	.4598
Skin	4.00	174	.005	-.02005	-2.2416	5.0248	.0251
Tobacco	8.50	305	.0097	.08245	2.2584	5.1004	.0495
				6.2416			11.5208